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THE GRYLLACRIDIDAE AND GRYLLIDAE OF THE BAHAMA ISLANDS, BRITISH WEST INDIES (ORTHOPTERA)

By H. F. STROHECKER¹

The study here presented is based largely on a collection of Orthoptera made by several persons of the American Museum staff in the Bahamas, especially on Bimini. All but a few of the specimens in this lot were collected in 1951; records for May are to be attributed to Cazier and Gertsch, those for June to Cazier and C. and P. Vaurie, and those for July and August to C. and P. Vaurie. Since the records in two previously published papers on Bahama Orthoptera, Morse (1905) and Rehn (1906), contain some synonyms, the corrected citations are listed in this treatment. The establishment of the correct nomenclature in these cases has been part of the prodigious work of J. A. G. Rehn and his co-worker, the late Morgan Hebard.

Cazier (1951) has given a brief description and Vaurie (1952) a more comprehensive discussion of the islands of Bimini, which are being studied entomologically for the first time. All previous records for the Bahama Orthoptera have been of New Providence or Andros, the one exception being a record from Long Island. The material now at hand reveals the presence of one gryllacridid species and 10 species of Gryllidae not hitherto known from the Bahamas. Two of the 10 gryllid species are new. The keys that follow deal only with the adults of the species known to occur in the Bahamas.

¹ Professor of Zoology, University of Miami, Coral Gables, Florida.

KEY TO GENERA

1. Tarsi four-jointed; front tibiae without tympanum at base. *Abelona*
Tarsi three-jointed; front tibiae with tympanum (minute in *Tafalisca*). 2
2. Second joint of tarsus very small, compressed. 3
Second joint of tarsus depressed, somewhat cordate. 10
3. Hind tibiae with two rows of long spines dorsally, not serrulate. 4
Hind tibiae serrulate above, with or without long spines. 7
4. Dorsal margins of hind metatarsus serrulate. 5
Dorsal margins of hind metatarsus setose but not serrulate. 6
5. Basal joint of antenna as wide as vertex between the antennae. . *Gryllodes*
Basal joint of antenna much narrower than interspace. *Acheta*
6. Hind tibiae with four spurs on each dorsal margin. *Nemobius*
Hind tibiae with three spurs on each dorsal margin. *Hygronemobius*
7. Dorsal margins of hind tibiae with articulated spurs. 8
Dorsal margins of hind tibiae with serrations only. 9
8. Hind metatarsus very strongly compressed. *Nemobiopsis*
Hind metatarsus cylindrical. *Amphiacusta*
9. Hind metatarsus very long, scarcely serrulate above. *Cycloptiloides*
Hind metatarsus distinctly serrulate above. *Cycloptilum*
10. Hind tibiae with only slender spurs on dorsal margins. 11
Hind tibiae with spurs and serrulations above. 12
11. Eyes longer than deep. *Cyrtoxipha*
Eyes deeper than long. *Anaxipha*
12. Tympanum of front face of front tibia minute. *Tafalisca*
Tympanum of front face of front tibia conspicuous. 13
13. Front tibia with tympanum on anterior face only. *Hapithus*
Front tibia with tympanum on anterior and posterior faces. *Orocharis*

FAMILY GRYLLACRIDIDAE

GENUS ABELONA

Abelona bolivari (Karny)

Gryllacris bolivari KARNY, 1929, EOS, vol. 5, p. 43, fig. 3.

Abelona bolivari KARNY, 1937, Genera insectorum, fasc. 206, p. 85.

The Bahama specimens agree with Karny's description and figures except that they have a few minute denticles on each dorsal carina of the caudal tibiae. According to Karny such denticles are absent in the holotype, although present in the female allotype.

TYPE LOCALITY: Cuba.

NEW BAHAMA RECORDS: South Bimini, May, 1951, one male; June, 1951, one male; August, 1951, one very small immature specimen.

FAMILY GRYLLIDAE

SUBFAMILY GRYLLINAE

GENUS GRYLLODES

Grylloides sigillatus (F. Walker)

Gryllus sigillatus F. WALKER, 1869, Catalogue of Dermaptera Saltatoria of the British Museum, pt. 1, p. 46.

Grylloides poeyi REHN, 1906, Bull. Amer. Mus. Nat. Hist., vol. 22, p. 117.

Rehn reported this tropicopolitan species from New Providence.

TYPE LOCALITY: Australia.

NEW BAHAMA RECORDS: South Bimini, May, June, 1951.

GENUS ACHETA

Acheta assimilis Fabricius

Acheta assimilis FABRICIUS, 1775, Systema entomologiae, p. 280.

Gryllus bryanti MORSE, 1905, Psyche, vol. 12, p. 22.

Gryllus assimilis REHN, 1906, Bull. Amer. Mus. Nat. Hist., vol. 22, p. 117.

Recorded by Morse as *Gryllus bryanti* from Andros and by Rehn from New Providence. Its range is enormous, extending over the whole United States, Mexico, the Antilles, and much of South America.

TYPE LOCALITY: Jamaica.

NEW BAHAMA RECORDS: South Bimini, May, June, 1951.

SUBFAMILY NEMOBIINAE

GENUS NEMOBIUS

KEY TO THE SPECIES OF *Nemobius*

1. Ventral terminal spurs of hind tibia equal. *carolinus*
 Ventral terminal spurs of hind tibia unequal, the inner longer 2
2. Ovipositor shorter than hind femur, slightly curved. *cubensis*
 Ovipositor as long as, or longer than, hind femur. *fasciatus*

Nemobius carolinus carolinus Scudder

Nemobius carolinus SCUDDER, 1877, Proc. Boston Soc. Nat. Hist., vol. 19, p. 36.

TYPE LOCALITY: North Carolina.

NEW BAHAMA RECORDS: South Bimini, May, June, August, 1951.

Nemobius cubensis cubensis Saussure

Nemobius cubensis SAUSSURE, 1874, Mission scientifique au Mexique et dans l'Amérique Centrale—Études sur les insectes orthoptères—Famille des gryllides, pt. 6, p. 384, pl. 7, fig. 5.

TYPE LOCALITY: Cuba.

NEW BAHAMA RECORDS: South Bimini, May, June, July, August, 1951.

Nemobius fasciatus socius Scudder

Nemobius socius SCUDDER, 1877, Proc. Boston Soc. Nat. Hist., vol. 19, p. 37.

TYPE LOCALITY: Georgia.

NEW BAHAMA RECORDS: South Bimini, May, June, August, 1951.

GENUS **HYGRONEMOBIUS****Hygronemobius alleni** (Morse)

Nemobius alleni MORSE, 1905, Psyche, vol. 12, p. 21.

Hygronemobius alleni HEBARD, 1913, Ent. News, vol. 24, p. 451, fig. 235.

Reported by Hebard (1915, p. 195) from Miami.

TYPE LOCALITY: Moraine Cay.

SUBFAMILY **PENTACENTRINAE**GENUS **NEMOBIOPSIS****Nemobiopsis gundlachi** Bolívar

Nemobiopsis gundlachi BOLÍVAR, 1890, An. Soc. Española Hist. Nat., vol. 19, p. 330, pl. 1, fig. 10.

This little known and bizarre cricket is represented by two females in the collections made on Bimini.

TYPE LOCALITY: Cuba.

NEW BAHAMA RECORDS: South Bimini, June 9, 1950 (Rindge and Cazier).

SUBFAMILY **PHALANGOPSINAE**GENUS **AMPHIACUSTA**KEY TO SPECIES OF *Amphiacusta*

Fastigium forming a distinct angle with posterior part of vertex. . . . *bahamensis*
Fastigium gently rising to vertex. *annulipes*

***Amphiacusta bahamensis* Morse**

Amphiacusta bahamensis MORSE, 1905, Psyche, vol. 12, p. 23.

None of the specimens at hand is referable to this species.

TYPE LOCALITY: Mangrove Cay, Andros.

***Amphiacusta annulipes* (Serville)**

Phalangopsis annulipes SERVILLE, 1831, Ann. Sci. Nat. Paris, vol. 22, p. 167.

Amphiacusta annulipes MORSE, 1905, Psyche, vol. 12, p. 23.

Amphiacusta annulipes REHN, 1906, Bull. Amer. Mus. Nat. Hist., vol. 22, p. 118.

Amphiacusta annulipes HUBBELL, 1938, Carnegie Inst. Washington Publ., no. 491, p. 213, figs. 12, 15, 16, 47-50, 52, 56-63.

A species of wide Antillean distribution, known from Guadeloupe, Haiti, Isle of Pines, and Cuba. Reported by Morse from New Providence, by Rehn from Andros, and by Hubbell from Long Island.

TYPE LOCALITY: Haiti.

NEW BAHAMA RECORDS: South Bimini, May, June, July, 1951.

SUBFAMILY MOGOPLISTINAE**GENUS CYCLOPTILOIDES*****Cycloptiloides americanus* (Saussure)**

Cycloptilum americanum SAUSSURE, 1874, Mission scientifique au Mexique et dans l'Amérique Centrale—Études sur les insectes orthoptères—Famille des gryllides, pt. 6, p. 426.

Cycloptilus americanus MORSE, 1905, Psyche, vol. 12, p. 21.

Cycloptilum americanum REHN, 1906, Bull. Amer. Mus. Nat. Hist., vol. 22, p. 118.

Glaphyropus americanus REHN AND HEBARD, 1912, Proc. Acad. Nat. Sci. Philadelphia, p. 190, figs. 1-3.

Cycloptiloides americanus HEBARD, 1922, Occas. Papers Bishop Mus., vol. 7, p. 352.

This diminutive cricket is of widespread occurrence, having been recorded from Cuba, Mexico, Hawaii, and northern South America. I recently discovered a small colony in my house in Miami. Reported from New Providence by Morse. It is often domiciliary, and Hebard suggested that it is of African origin. There are no specimens in the collection now being studied.

TYPE LOCALITY: Cuba.

GENUS **CYCLOPTILUM**KEY TO SPECIES OF *Cycloptilum*

- Last joint of maxillary palp obconic. *antillarum*
 Last joint of maxillary palp with distal face strongly oblique. *barbicornae*

Cycloptilum antillarum (Redtenbacher)

Ectatoderus antillarum REDTENBACHER, 1892, Proc. Zool. Soc. London, p. 218, pl. 17, figs. 16a, 16b.

Mogisoplastus barbouri MORSE, 1905, Psyche, vol. 12, p. 21.

Mogoplistes barbouri REHN, 1906, Bull. Amer. Mus. Nat. Hist., vol. 22, p. 118.

Liphoplus krugii REHN, *ibid.*, vol. 22, p. 117.

Cycloptilum antillarum REHN AND HEBARD, 1912, Proc. Acad. Nat. Sci. Philadelphia, p. 196, figs. 5-8.

Cycloptilum antillarum HEBARD, 1931, Trans. Amer. Ent. Soc., vol. 57, p. 139.

This is another species of great range, known to occur in southeastern United States, Cuba, Bermuda, and Colombia. Morse recorded it from New Providence and Rehn from Mangrove Cay, Andros.

TYPE LOCALITY: St. Vincent.

NEW BAHAMA RECORDS: South Bimini, July, 1951.

Cycloptilum barbicornae, new species

Figure 1

Very similar to *C. trigonipalpum* Rehn and Hebard, being of the same size and coloration. The last joint of the maxillary palp is also similar in contour to that of *trigonipalpum*, but its distal face is more strongly oblique and longer than the lower edge. The most decisive difference is to be found in the antennal structure of the male. The basal joint is very broad, angularly produced apico-internally, and there with a dense tuft of long, golden hairs. The internal edge of the joint is fringed with long, soft hairs. I find no difference in females of the two species except in the terminal joint of the maxillary palp, and this difference is not great.

The measurements of the holotype male are: length of body, 6.6 mm.; of pronotum, 3.5 mm.; of hind femur, 3.9 mm.; of cercus, 4.7 mm. The ovipositor of the allotype measures 5.2 mm. in length.

TYPE MATERIAL: Holotype, male, collected on North Bimini

in June, 1951, by Cazier and C. and P. Vaurie; allotype, female, taken by C. and P. Vaurie on South Bimini in August, 1951; both in the American Museum of Natural History. The para-

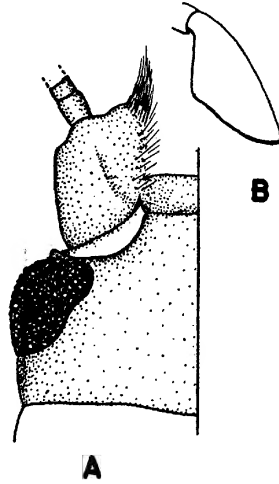


FIG. 1. *Cycloptilum barbicorne*, new species. A. Left side of head of male. B. Last joint of maxillary palp.

typic series comprises 14 males and 14 females collected on South Bimini during the period of May to August, 1951. Most of these specimens have lost both hind legs and the cerci.

SUBFAMILY TRIGONIDIINAE

GENUS CYRTOXIPHA

Cyrtoxipha gundlachi Saussure

Cyrtoxipha gundlachi SAUSSURE, 1874, Mission scientifique au Mexique et dans l'Amérique Centrale—Études sur les insectes orthoptères—Famille des gryllides, pt. 6, p. 373.

Morse's record of *Cyrtoxipha* sp. from New Providence undoubtedly pertains to this species, which is known from northern South America and various islands of the Antilles and is of common occurrence in peninsular Florida.

TYPE LOCALITY: Cuba.

NEW BAHAMA RECORDS: South Bimini, May, August, 1951.

GENUS **ANAXIPHA****Anaxipha imitator** (Saussure)

Cyrtoxipha imitator SAUSSURE, 1878, Mélanges orthoptérologiques, fasc. 6, pt. 2, p. 627.

Anaxipha imitator HEBARD, 1915, Ent. News, vol. 26, p. 466, pl. 20, figs. 4A, 4D.

TYPE LOCALITY: Cuba.

NEW BAHAMA RECORDS: South Bimini, June, 1951.

SUBFAMILY **ENEOPTERINAE**GENUS **HAPITHUS****Hapithus nodulosus**, new species

Figure 2

Small for the genus. Front tibia with an elliptical tympanum on its anterior face. Fastigium of vertex rounded into the front, the ocelli large, the median one directed anteriorly owing to a depression of the fastigium in front of it. Eyes strongly projecting. Pronotum at base about one and a half times as broad as long, distinctly margined both at base and apex and with a median channel. Tegmina considerably shorter than the abdomen, not tectate in either sex. The subcostal (mediastine) vein



FIG. 2. *Hapithus nodulosus*, new species. Node on hind femur of male.

emits four branches near its base, of which the most anterior ends in the proximal fourth of the tegmen; the others follow a course parallel to the long axis of the tegmen and end in the distal fifth of the costal field, only the fourth branch attaining the margin. Hind femur moderately stout and rapidly tapering to apex. Hind tibia subequal in length to the femur, its dorsocephalic carina with five spurs, its dorsocaudal carina with seven spurs. Both carinae are serrulate proximal to and between the spurs. The hind tibia has three internal and three external calcars at its tip, the external all minute, the dorso-internal longest, the ventro-internal minute. Head, pronotum, and legs pale umber. Vertex with a black spot in front of each lateral

ocellus, front with a narrow black line on each side, which follows the contour of the antennal socket. Pronotum with upper part of lateral lobes and a vague bar in front of hind margin black. Hind femur with a narrow, dark line extending along outer face from base to apex. Abdominal tergites and last several sternites shining black, cerci and suranale pale. Tegmina dusky but transparent, the veins lighter, the radio-medial interval ivory white. The venation of the male tambour is very much like that of *H. agitator* Uhler. The only difference noted is that the dividing vein of the mirror in the present species is incomplete, arising from the hind margin, passing directly forward, and becoming evanescent in the middle of the mirror. The hind femur of the male has on its inner inferior surface a large node thickly studded with short, stout spines. The ovipositor of the female is slightly upcurved (artifact due to drying from alcohol?), and its valves are acute, the lower ones with low, rounded teeth. The measurements of the holotype are: length of body, 9 mm.; of pronotum, 1.7 mm.; of tegmen, 5.5 mm.; of hind femur, 8 mm. Ovipositor of allotype, 7.3 mm.

TYPE MATERIAL: Holotype, male, South Bimini, August, 1951, collected by C. and P. Vaurie; allotype, female, South Bimini, June, 1951, taken by Cazier, C. and P. Vaurie. There is also a single paratypic female with data as for the allotype. Holotype and allotype in the American Museum of Natural History; paratype in the author's collection.

GENUS *OROCHARIS*

KEY TO SPECIES OF *Orocharis*

1. Ocelli large, elliptical, narrowly separated.....*gryllodes*
Ocelli small, round, widely separated.....2
2. Size small (less than 20 mm.).....*saltator*
Size greater than 20 mm.....*antillarum*?

Orocharis gryllodes (Pallas)

Gryllus gryllodes PALLAS, 1772, *Spicelegia zoologica*, vol. 1, fasc. 9, p. 16, pl. 1, fig. 10.

Orocharis gryllodes REHN, 1906, *Bull. Amer. Mus. Nat. Hist.*, vol. 22, p. 118.

Rehn's report cites New Providence and Andros. There are no specimens in the recent collections.

TYPE LOCALITY: Jamaica.

Orocharis saltator Uhler

Orocharis saltator UHLER, 1864, Proc. Ent. Soc. Philadelphia, vol. 2, p. 545.

TYPE LOCALITY: Baltimore.

NEW BAHAMA RECORDS: Gun Cay, September, 1947 (Oliver); South Bimini, June, July, and August, 1951.

?Orocharis antillarum Saussure

Orocharis antillarum SAUSSURE, 1874, Mission scientifique au Mexique et dans l'Amérique Centrale—Études sur les insectes orthoptères—Famille des gryllides, pt. 6, p. 496.

I use this name with little confidence for a female specimen collected on Bimini. The insect is large (body, 29 mm.; tegmen, 25 mm.; hind femur, 19 mm.; ovipositor, 19 mm.), and the ocelli are very small and widely separated. The color is uniformly tawny except for a narrow black band along each lateral margin of the pronotum. Possibly an undescribed species is represented, but until males are known even generic placement cannot be made with assurance. The collections contain also an immature male and two immature females.

TYPE LOCALITY: Guadeloupe.

NEW BAHAMA RECORDS: Bimini, October, 1947 (J. A. Oliver); South Bimini, June, 1950 (Cazier and Rindge); South Bimini, May, 1951.

GENUS TAFALISCA**Tafalisca lurida** F. Walker

Tafalisca lurida F. WALKER, 1869, Catalogue of Dermaptera Saltatoria in the British Museum, pt. 1, p. 53.

Tafalisca lurida REHN, 1906, Bull. Amer. Mus. Nat. Hist., vol. 22, p. 118.

Of wide Antillean distribution, this cricket has extended its range over a considerable portion of peninsular Florida. Rehn reported it from Little Golding Cay, Mangrove Cay, Andros, and Dog Cay. Most of the specimens in the present collection are immature.

TYPE LOCALITY: Santo Domingo.

NEW BAHAMA RECORDS: South Bimini, June, 1950 (Cazier and Rindge); South Bimini, May, June, July, and August, 1951.

SUMMARY

Of the 20 species of Orthoptera listed above, three are apparently endemic to the Bahamas. Of the others only three are unknown from Cuba or other islands of the Antilles. A number of the remaining 14 have wide distribution in North America, but their occurrence in the Antilles makes unnecessary the supposition that they have colonized the Bahama Islands directly from North America. The facies of this segment of the Bahaman fauna is preponderantly Antillean.

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